

## Curriculum Vitae JAMES J. BENEDICT

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### RESEARCH APPOINTMENTS

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#### **Postdoctoral Research Scientist, Lawrence Berkeley National Lab, Dec 2012-present**

Supervisor: Dr. William Collins

Theme(s): Develop and test global climate models (GCMs) that use “scale-aware” cloud parameterizations in a multiscale modeling framework (one in which the grid resolution transitions smoothly to a finer mesh in selected areas); evaluate the ability of these newly developed GCMs to reproduce the statistical properties of our climate system—and, most importantly, the key multiscale features of organized tropical convection—by comparing model output to high-quality, high-resolution, observation-based data sets

#### **Postdoctoral Fellow, Colorado State University, Dec 2009–Dec 2012**

Supervisor: Dr. Eric Maloney

Theme(s): Examine version 3 of the Geophysical Fluid Dynamics Laboratory (GFDL) Atmosphere Model (AM3) and its ability to simulate tropical intraseasonal variability [e.g., Madden-Julian Oscillation (MJO)]; experiment with modified versions of AM3 with a goal of improving intraseasonal variability depiction; examine impacts of mean atmospheric states on the MJO using radiosonde and satellite data; investigate the potential role of gross moist stability as a diagnostic and/or predictor of the MJO in models and in observations.

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### EDUCATION

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#### **Ph.D., Atmospheric Science, Colorado State University, 2010**

Dissertation title: *Structure of the Madden-Julian Oscillation in Coupled and Uncoupled Versions of the Superparameterized Community Atmosphere Model*

Advisor: David Randall

#### **M.S., Atmospheric Science, Colorado State University, 2005**

Thesis title: *The Birth and Death of the MJO: An Observational Study*

Advisor: David Randall

#### **B.S., Meteorology, Pennsylvania State University, 2002**

Thesis title: *The Involvement of Synoptic-Scale Eddies in the Evolution of the North Atlantic Oscillation*

Thesis advisor: Sukyoung Lee

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## AWARDS AND HONORS

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Selected Participant in EUCLIPSE Summer School *Clouds and Climate*, 2013; Outstanding Poster Award for Early Career Scientist, WCRP Open Science Conference, 2011; Environmental Science Communication Fellow, 2011; Shrake-Culler Scholarship (academic excellence), 2007; John A. Dutton Award (excellence in atmospheric dynamics), 2002; Hans A. Panofsky Scholarship (academic excellence), 2002; Charles Hosler Scholarship (academic excellence), 2001; Member, Chi Epsilon Pi (Penn State Meteorology honors society), 2000

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## REFEREED PUBLICATIONS

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### Submitted

Randall, D. A., C. DeMott, C. Stan, M. Khairoutdinov, **J. Benedict**, McCrary, R., and K. Thayer-Calder, 2013: Simulations of the Tropical General Circulation with a Multiscale Global Model. Submitted to *AMS Meteorology Monographs, Yanai Memorial Volume*.

**Benedict, J. J.**, A. H. Sobel, E. D. Maloney, D. M. W. Frierson, 2013: Gross Moist Stability and MJO Simulation Skill in Three Full-physics GCMs. Submitted to *Journal of the Atmospheric Sciences*.

### Published

8. **Benedict, J. J.**, A. H. Sobel, E. D. Maloney, D. M. Frierson, and L. J. Donner, 2013: Tropical Intraseasonal Variability in Version 3 of the GFDL Atmosphere Model. *Journal of Climate*, **26**, 426-449.
7. Goswami, B. B., N. J. Mani, P. Mukhopadhyay, D. E. Waliser, **J. J. Benedict**, E. D. Maloney, M. Khairoutdinov, and B. N. Goswami, 2011: Monsoon Intraseasonal Oscillations as Simulated by the Superparameterized Community Atmosphere Model. *Journal of Geophysical Research–Atmospheres*, **116**, D22104, doi:10.1029/2011JD015948.
6. Drossman, H., **J. Benedict**, E. McGrath-Spangler, L. Van Roekel, and K. Wells, 2011: Assessment of a Constructivist-Motivated Mentoring Program to Enhance the Teaching Skills of Atmospheric Science Graduate Students. *Journal of College Science Teaching*, **41**, 72-81.
5. **Benedict, J. J.**, and D. A. Randall, 2011: Impacts of Idealized Air-Sea Coupling on Madden-Julian Oscillation Structure in the Superparameterized CAM. *Journal of the Atmospheric Sciences*, **68**, 1990-2008.
4. Kim, D., K. Sperber, W. Stern, D. Waliser, I.-S. Kang, E. Maloney, W. Wang, K. Weickmann, **J. Benedict**, M. Khairoutdinov, M.-I. Lee, R. Neale, M. Suarez, K. Thayer-Calder, G. Zhang, 2009: Application of MJO Simulation Diagnostics to Climate Models. *Journal of Climate*, **22**, 6413-6436.
3. **Benedict, J. J.**, and D. A. Randall, 2009: Structure of the Madden-Julian Oscillation in the Superparameterized CAM. *Journal of the Atmospheric Sciences*, **66**, 3277-3296.
2. **Benedict, J. J.**, and D. A. Randall, 2007: Observed Characteristics of the MJO Relative to Maximum Rainfall. *Journal of the Atmospheric Sciences*, **64**, 2332-2354.

1. **Benedict, J. J.**, S. Lee, and S. Feldstein, 2004: Synoptic View of the North Atlantic Oscillation. *Journal of the Atmospheric Sciences*, **61**, 121-144.

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## CONFERENCE/WORKSHOP PRESENTATIONS

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### Recent (previous two years):

- Jun 2013: CESM AMWG Summer Meeting (Breckenridge, CO)**—*Preliminary Assessment of the MJO in a 0.25° CAM Simulation* (poster)
- Dec 2012: AGU Fall Meeting (San Francisco, CA)**—*Tropical Intraseasonal Variability in Version 3 of the GFDL Atmosphere Model* (oral presentation, **invited**)
- Dec 2012: AGU Fall Meeting (San Francisco, CA)**—*Comparison of Mean States and MJO Events During MISMO and DYNAMO Field Campaigns* (poster)
- Sep 2012: 1st Pan-GASS Workshop (Boulder, CO)**—*Gross Moist Stability as a Diagnostic of Intraseasonal Convection in the CAM, SP-CAM, and GFDL AM* (oral presentation)
- Aug 2012: CMMAP Summer Meeting (Fort Collins, CO)**—*Gross Moist Stability as a Diagnostic of Intraseasonal Convection in GCMs* (oral presentation)
- Apr 2012: 30th Conference on Hurricanes and Tropical Meteorology (Ponte Vedra Beach, FL)**—*Interactions Between Local Atmospheric Vertical Structures and the Madden-Julian Oscillation* (oral presentation)
- Jan 2012: Workshop on Tropical Dynamics and the MJO (Honolulu, HI)**—*Gross Moist Stability as a Diagnostic of Intraseasonal Convection in the CAM, SP-CAM, and GFDL AM* (poster)
- Oct 2011: World Climate Research Programme (WCRP) Open Science Conference (Denver, CO)**—*Assessment of Tropical Intraseasonal Variability in Versions 2 and 3 of the GFDL Atmosphere Model* (poster)

### Selected older presentations:

- Jun 2010: Workshop on Modeling Monsoon Intraseasonal Variability (Busan, South Korea)**—*The MJO in Uncoupled and Coupled Versions of the Superparameterized CAM/CCSM* (oral presentation, **invited**)
- Jan 2010: CMMAP Winter Meeting (La Jolla, CA)**—*Effects of a Slab Ocean Model on MJO Structure in the SP-CAM* (oral presentation, **invited**)
- Jul 2009: International Association of Meteorology and Atmospheric Science (IAMAS) General Assembly (Montreal, Canada)**—*Effects of Idealized Ocean-Atmosphere Coupling on MJO Structure in the Superparameterized CAM* (oral presentation)
- Aug 2007: CMMAP Summer Meeting (Fort Collins, CO)**—*What the heck is an MJO?* (oral presentation)
- Jul 2007: International Union of Geodesy and Geophysics (IUGG) General Assembly (Perugia, Italy)**—*Characteristics of the MJO in a CSU Multi-scale Modeling Framework Simulation* (poster)
- Jun 2005: 15th Conference of Atmospheric and Oceanic Fluid Dynamics (Cambridge, MA)**—*The Birth and Death of the MJO: An Observational Study* (oral presentation)

**Oct 2004: National Science Foundation Science and Technology Center [Center for Multiscale Modeling of Atmospheric Processes (CMMAP)] Proposal Meeting (Fort Collins, CO)—*The Birth and Death of the MJO: An Observational Study* (poster)**

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## INVITED SEMINARS

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**Mar 2013: Lawrence Livermore National Lab (Livermore, CA)—*Making Waves in the Tropics: Superparameterization and the Madden-Julian Oscillation***

**Oct 2011: University of Colorado (Boulder, CO)—*Impacts of Idealized Air-Sea Coupling on Madden-Julian Oscillation Structure in the Superparameterized CAM***

**Sep 2011: Pennsylvania State University (State College, PA)—*Impacts of Idealized Air-Sea Coupling on Madden-Julian Oscillation Structure in the Superparameterized CAM***

**Sep 2010: Columbia University (New York, NY)—*Tropical Intraseasonal Variability: GCM Simulation Results and Remaining Challenges***

**Sep 2010: Geophysical Fluid Dynamics Laboratory (Princeton, NJ)—*Tropical Intraseasonal Variability: GCM Simulation Results and Remaining Challenges***

**Jan 2010: University of Washington (Seattle, WA)—*MJO Structure in Coupled and Uncoupled Versions of the Superparameterized CAM***

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## FIELD WORK

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**Tropical Warm Pool International Cloud Experiment (TWP-ICE)—**21 Jan-16 Feb 2006, Darwin, Australia. Participated in synoptic weather assessment group headed by Dr. John McBride; wrote daily discussions and forecasts of synoptic and intraseasonal weather features for use by other project scientists

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## SERVICE

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**Presenter at Alliance for Climate Education Workshop: Climate Change in the Next Generation Classroom:** Aug 2013, Sacramento, CA. Presentation title: *Feedbacks, Clouds, and Climate*.

**Max A. Eaton Prize selection committee:** Apr 2012. Review a collection of student papers and select the top entry at the AMS Hurricane and Tropical Meteorology conference.

**CSU Chairman, National Collegiate Weather Forecasting Contest (WxChallenge):** Aug 2005–Aug 2012, Fort Collins, CO. Develop and maintain CSU's web forecasting interface, organize weather discussions.

**Hands-On Future Tech Annual Meeting:** Nov 2008, Albuquerque, NM. Conduct science demonstrations for undergraduate minority students, recruit participants to CMMAP institutions.

**Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) Annual Meeting:** Oct 2007, Kansas City, MO. Conduct science demonstrations for undergraduate minority students, recruit participants to CMMAP institutions.

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## PROFESSIONAL ACTIVITIES

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- Regular reviewer:  
Journals: *Climate Dynamics*, *Journal of the Atmospheric Sciences*, *Journal of Climate*, *Journal of the Meteorological Society of Japan*, *Monthly Weather Review*, *Quarterly Journal of the Royal Meteorological Society*, and *Environmental Research Letters*  
Grant Agencies: National Science Foundation
- Expert contributor to the WCRP/WWRP/THORPEX YOTC MJO Task Force, 2011-2012
- Co-convener, AGU Fall Meeting, 2012: A13O, *Atmospheric and Oceanic Variability Associated with the MJO in the Tropical Indian and West Pacific Oceans*
- Research consultant, Center for Multiscale Modeling of Atmospheric Processes, 2009-2012
- Member of the American Geophysical Union, 2007-present
- Member of the American Meteorological Society, 2002-present

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## TEACHING EXPERIENCE

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**Co-instructor for EV 431, 2008:** *Air: Atmospheric Physics and Chemistry*, Colorado College

**Teaching Assistant for ATS 605, 2006:** *General Circulation of the Atmosphere*, CSU

**Teaching Assistant for ATS 655, 2004:** *Objective Analysis in Atmospheric Science*, CSU

**Lab Instructor for METEO 003, 2001:** *Introductory Meteorology*, Pennsylvania State University

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## COMPUTER PROGRAMMING SKILLS

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- Proficient in UNIX, Fortran, NCL, and GrADS
- Some experience in IDL

*(Last updated: Thursday, August 8, 2013)*